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Soil Data Exchange Standards, Development and Implementation Perspectives from the Oceania Regional Soil Partnership

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The Oceania region covers a vast expanse of the Indian and South Pacific Oceans. A good understanding of the regional soils and their required management is essential to ensure soil security, sustainable food production and the maintenance of essential ecosystem services. Data on the soil resource is required at all scales and easily accessible in formats that can be readily integrated and used for a wide range of purposes (Global Soil Partnership (GSP) Pillar 4). Soil data exchange standards and the delivery of harmonized soil data and information using application program interfaces (APIs) based on widely adopted technical specifications are essential components of local, regional and global soil information systems (GSP Pillar 5). At global levels, development of soil data exchange standards have been variously progressed through the GlobalSoilMap specifications, the IUSS Working Group on Soil Information Standards, the International Standards Organization (ISO 28258), the OGC Soil Interoperability Experiment (led by Manaaki Whenua, CSIRO and ISRIC), the Research Data Alliance and GODAN agriculture and soil working groups and now through the GSP Pillar 4 and 5 action plans and the development of the Global Soil Information System GLOSIS. This presentation discusses some of the ways that the Oceania Regional Soil Partnership is developing, testing and implementing soil data standards and exchange services. It presents examples of local, regional and global efforts and approaches and considers the needs for progressing global sharing and interoperability of soil data. Based on our experiences we draw the following conclusions. That we need to learn from other domains and adopt and leverage from their advances rather than re-inventing approaches – such as better utilising the OGC's Observations & Measurements, Time Series and other geoscience domain models. We need to extend these only when it is impossible to describe our

soil specific domain. That further progress requires clarity and mandates for who is performing what role and better coordination and more resources to utilise the available but limited specialist expertise, knowledge and leadership. Data standards, vocabularies and other components need to be managed and controlled through domain expertise (IUSS Working Group on Soil information Standards) and promulgated and shared through interaction with user communities (e.g. Research Data Alliance and the GODAN interest groups).

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